ASD Weekly Highlights for the Week Ending 14-July-2006

Operations

July 8-14 2006

From 08-JUL-2006 to 14-JUL-2006

Request Type	Hours	Percent Beam Activity
Beam Time (delivered to Target)	165.50	98.51
Testing (Machine on, no Beam, e.g. RF Processing)	2.50	1.49
Total Beam Activity Requested	**168.00**	

Recorded Activity Type	Hours	Percent of Total
Beam Time (delivered to Target)	130.70	98.05
Machine Studies (remedial - to recover Beam Time)	.60	.45
Testing (Machine on, no Beam, e.g. RF Processing)	2.00	1.50
Total Activity Recorded	**133.30**	
Total Planned Beam Time	**165.40**	
Total Downtime Recorded	**34.70**	**20.98**

Equipment Breakdown by Group and SubGroup

Group	SubGroup	Hours	Percent of Breakdown T
Target	Target MOTS - Mercury	1.50	4.32
Vacuum	Vacuum Diagnostics	1.10	3.17
Vacuum	Vacuum Pumps and Controllers	.30	.86
Controls	Timing System	.30	.86
Controls	Software – EPICS	.80	2.31

RF Systems	Cavities and Structures	1.00	2.88
RF Systems	HPRF - High Power RF Systems	3.10	8.93
Electrical Systems	LEBT Chopper	4.00	11.53
Electrical Systems	Power Supplies	9.60	27.67
Electrical Systems	HVCM -	1.50	4.32
Machine Protection System	Fast Protect - Latched	.50	1.44
Cooling Systems	DI	7.50	21.61
Cooling Systems	QMCS	3.00	8.65
Cooling Systems	RFQ Chiller	.50	1.44

Accelerator Physics

- Preparations were made for the accelerator turn on, including setup of a constant longitudinal focusing lattice, which is hoped to provide better longitudinal beam capture.

- The beam was brought on through the linac. This included careful setup of the RF cavities, trajectory correction, and attempts at matching from the MEBT to DTL, DTL to CCL and SCL to HEBT transitions. The operators were trained in the use of the RF setup applications.

RF Systems

HPRF:

- Three klystrons were moved from the RF test facility to the Klystron Gallery as ready spares over the last three weeks. An 805 MHz 5MW and a 402.5 MHz 2.5 MW tube were placed on HV tanks ready to be air-padded into place. An 805 MHz 550 kW CPI tube was placed on a fixed stand in the Gallery.
- Our two newest RF technicians were sent to special LOTO training as well as classes on RF Hazzards.

Ion Source

- The ion source was retuned and delivered ~27 mA with 45 kW and a room-temperature Cs collar. Under the current condition the source is expected to last through the entire run period. The current can be increased by increasing the collar temperature and/or with a 2nd cesiation.
- The lens settings that maximize the RFQ transmission has increased by about 5% since the source started up. This is another indication that the position of the meniscus changes while the source stabilizes.
- Robert Welton has presented an LDRD proposal for a Helicon ion source. The Helicon technology generates high density plasmas with much less power than our baseline ion source. The low power requirement promises high reliability.

Instrumentation and Controls

- The principle activity this week was supporting operations, although there were very few calls or system problems.

- John Carwardine of APS visited and presented a seminar on “Plans and Challenges for the ILC Control System. Kay Kasemir presented a “pizza” brown-bag seminar on regression testing methods and an automated technique for producing state diagrams from EPICS SNL (State Notation Language) code. *

- Buttons have been added to each LLRF system screen that start pre-defined StripTool configurations for that system. A new Ring HPRF PanelView program is ready for test.
  The Cryo OPI was upgraded to a new system. Three of four cryo OPIs have now been upgraded. In order to better protect the fragile SCL systems, all work on introducing interlocks to protect the fragile SCL system has been stopped.

- Design proceeded on the vacuum system control for the test cave in RFTF. Cable pull list is complete. PLC layout drawing complete. PLC I/O assignments are at 50% complete and PLC rack wiring drawings have not started.

- HEBT wire scanner WS01 was repaired and all wire scanners are now on line. The temporary timing IOC Time01 in DTL was also repaired .Electronics for the front end Allison scanner is nearing completion. Modifications to one of the front end harps are complete and the harp is ready to reinstall. A test for the ring electron detector installed in the “B” straight has been set up. The first prototype amplifier is ready for beam in gap kicker testing. A new PCB that incorporates line drivers has been made for the Laser Wire Photo Diode Camera interface. A first version of a Fast BLM (FBLM) softIOC that sets parameters (timing delay, timing event, amplifier gain, HV bias) for all FBLMS has been written.

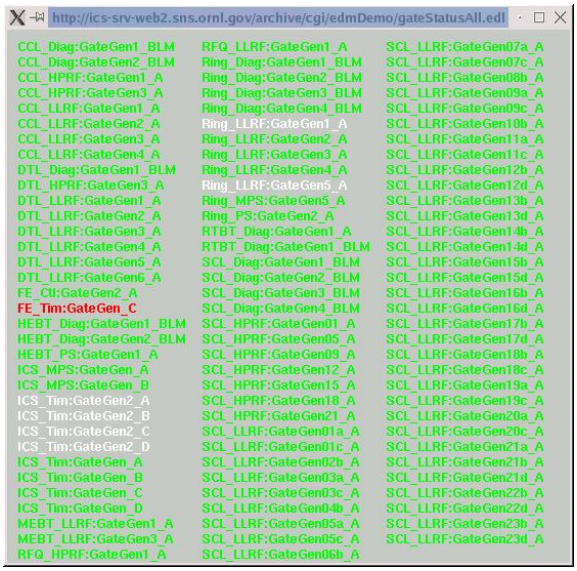
- Diagnostic data was moved around on the data server 'web2'. It had been filling the disk that's shared with the other archives close to 100%. Now it's filling a disk together with the magnets. They're currently at 75%. The data server setup was extended so that the 'CD4' data can be seen together with the rest.

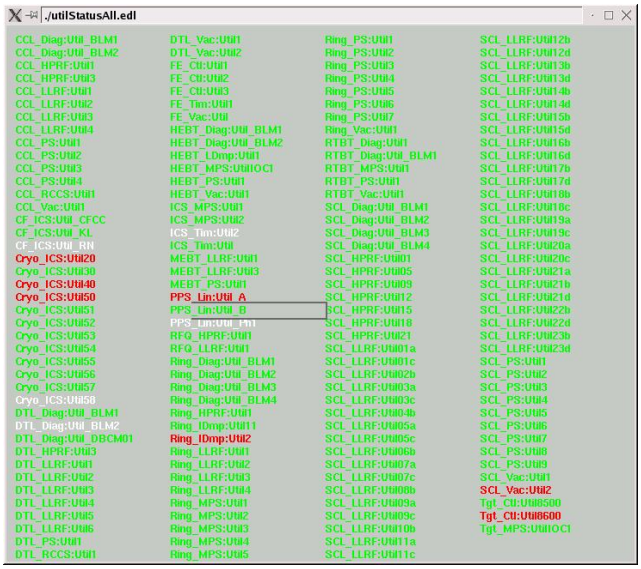
- The Gamma blocker status, fault and "loss of counts” indications have been added to PPS displays. These are new tags that were added to the PLC program recently to address the Chipmunk “flatline” issue.

- Analysis lf the HFIR Cold Source H2O2 monitoring system (which includes ODH) was completed. The system design, etc was in much better shape than HFIR thought. A few design suggestions to make the logic do what is needed

with a terminal strip and some 24VDC to 120VAC relays was made and will be implemented to the degree needed. Part of this analysis involved casting the requirements into an easily readable truth table. This needs to be updated and revisited by HFIR stake holders to make sure the relay wiring executes the latest requirements and wants.

- Two new screens are now accessible from the timing master diagnostics screen. (See below.) All of the PVs visible on the screen are behind a related display button that brings up the engineering screen for the module. The UtilityStatus screen shows the state of the TSError PV found by the PV crawler on all of the utility modules. RED means that there is a time stamp fault. The V124 screen shows the carrier status PV on the V124's diagnostic screen. RED means that the module is NOT WORKING, most likely because there is a problem in the event link distribution. (The one red one is the crate that is now being used in the HEBT to trigger the laser wire diagnostic.





- 25 new utility modules have been ordered from a vendor that was involved in building some of those that we have. There are so many obsolete parts that the vendor will not provide a delivery date. When we get below zero spares, then spares will have to come from working systems that don't need RTDL data to work, notably Cryo, power supplies, Vac, CF, PPS etc.

- Work started on the CCTV cameras in the Target Building, and continued on fourth floor control room "teleRob" cables. A change to the 50 ton target crane controls is in progress.

SRF Facility

Project Upgrade

Survey and Alignment

- Target
    - Translation stages were set on the theoretical BL (above the chopper cavities) on BL10 and BL14.
    - On BL18, S&A worked with Swiss Neutronics setting the "Z" coordinate on a neutron guide for BL18.
    - On BL11, S&A worked with the iron workers and Luke (BL11 engineer) aligning the vertical plate downstream of the BSL. We performed an as-built survey locating features on the vertical plate on BL11. We also marked points for columns on BL 18.
- Linac
    - The data adjustment of the linac alignment verification (performed in June 06) is complete. We are now in the process of placing the data into a usable format to be sent out to the project in the next few days.

Cryo Systems

Mechanical Systems

Water
Vacuum
Mechanical

Electrical Systems

AC Power Systems:

- Two PowerNet Genesis monitoring screens for the generators are 100% developed.
- Revised electrical design for CLO 3rd floor buildout.
- Review of RF cleanroom, mezzanine and test cave modification requirements.
- Review of RF cleanroom proposal.
- Review of CLO conference room furniture layouts and power feed requirements.
- Walk-through/Punchlist for SRF and Klystron Gap Construction.
- Finalized revising engineering documents for the CLO third floor build out project
- Issued for squad check the as-built drawings of the SNS site utilities main electrical single line diagram and feeder schedule

- PA speaker installation – CHL control room; replaced horns with ceiling type speakers
- Ventilation Fan Circuit Breaker Trip Point Adjustment in CHL
- Circuit Breaker Operation for CHL Maintenance
- Power Monitoring System Installation
- Target 50 Ton Crane Limit Switch Modification

Power Supplies:

- Repaired RTBT_Mag:PS_DCH22, digital display went out which required resetting the master/slave switch
- Troubleshot extraction kicker #5 down to the ALE high voltage power supply, waiting for replacement to arrive
- Repaired DTL_Mag:PS_DCV152, fuses failed on the 15 VDC power supply
- Performed maintenance activities inside the ring service building to facilitate easier access to the PFN room

Modulators

- Repaired CCL Mod-1 SCR cabinet
- Repaired IGBT Assemblies
- Repaired and replaced MEBT positive Chopper
- Ordered 20 spare IGBTs from Eupec to replenish dwindling spares inventory
- Troubleshooting of MEBT chopper systems to isolate problem to discrete subsystem
- Prepared IGBT switch plate assembly for loan to SLAC for gate drive development
- Review of PCB layout for Dynamic Fault Detection chassis for final production board manufacturing
- Documentation preparation for installation of water leak detection system in HVCM units, slated to begin during next week’s daily maintenance period

Other

- Members of the group attended LOTO/RF Safety / ODH Safety / Liquid Hydrogen Safety Training (LOTO taught by D. Anderson)